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Foreign Fisheries Leaflet No. 74-4

Fisheries of Indonesia, 1972

Office of International Fisheries
WASHINGTON, D.C.
June 1974

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / National Marine Fisheries Service

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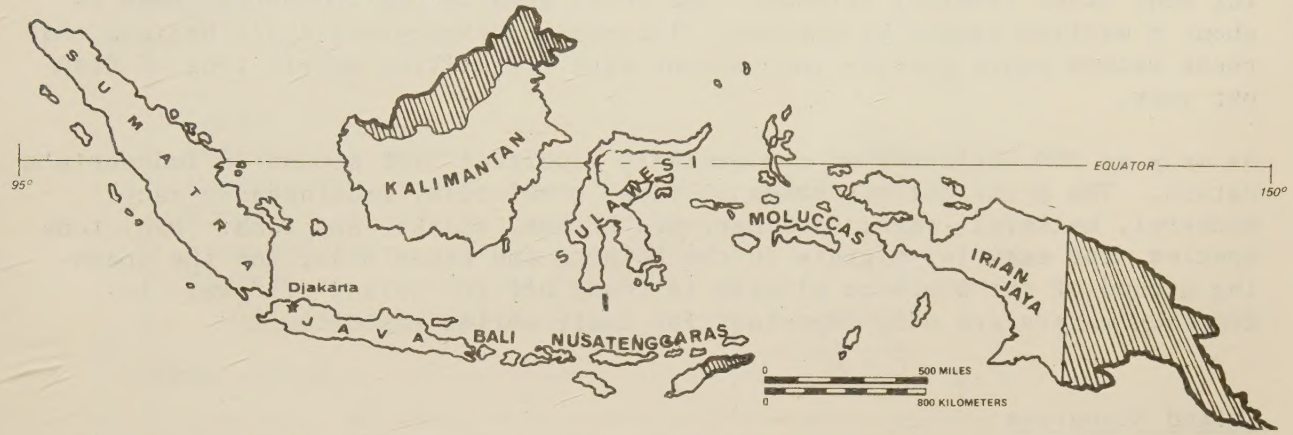
FISHERIES OF INDONESIA, 1972

William B. Folsom and James J. Reilly

INTRODUCTION

Indonesia is a nation of some 3,000 islands which stretch for more than 4,800 kilometers along the Equator between the Malay Peninsula and northern Australia:



Administratively, Indonesia is divided into 8 different regions: Sumatra, Java, Kalimantan (formerly Borneo), Sulawesi (formerly the Celebes), Bali, Nusatenggara, the Moluccas, and Irian Jaya (formerly West Irian). There are 23 additional sectors within these 8 major divisions.

Indonesia's 119 million inhabitants live on a crowded land mass of some 1.9 million square kilometers (about the size of Texas). The Indonesian's eat about 10 kg of fish per capita per year; roughly two-thirds of this fish come from the nation's marine fisheries with the remainder being provided by the inland fisheries of Indonesia.

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FISHERY RESOURCES

The Directorate General of Fisheries in Indonesia estimates that the total potential yield of Indonesia's fisheries is 8.9 million metric tons per year. However, only 15 percent of this resource is presently being harvested.

Marine Resources:

The seas surrounding Indonesia are believed to be richer than those surrounding many other tropical islands. The total area of the Indonesian seas is about 5 million square kilometers. Indonesian fishery officials believe that these waters could provide Indonesians with 7.3 million metric tons of fish per year.

As many as 200 varieties of commercially important fish abound in Indonesia's waters. The principal varieties include: coral fish, crustaceans, jack mackerel, mackerel, rays, sardines, sea breams, sharks, and tuna. Many tuna species, for example, migrate in the Molucca and Banda Seas, and the spawning ground of the southern bluefin is found off the island of Java. Indonesian waters are also important for their shrimp resources.[1/]

Inland Resources:

The total inland water (fresh and brackish) area in Indonesia is 9.4 million hectares with a potential yield of 1.6 million metric t per year; present production is around 430,000 t. The estimated potential harvest for Indonesia's fisheries---both inland and marine--- is shown in table 1.

1/ A comprehensive examination of Indonesia's shrimp potential was presented in FFL 73-16, "A Review of the Indonesian Shrimp Fishery and its Present Developments." This report was reprinted in the Marine Fisheries Review as MFR Paper 1030.

Table 1.-- Estimated fishery resources in Indonesia

Resource	Yield
	1,000 m t
Marine:	
Pelagic fish (excluding tuna)----	4,000
Demersal fish----------	3,000
Tuna----------	200
Shrimp----------	125
Total----------	7,325
Inland:	
Swamps----------	821
Lakes----------	652
Ponds----------	73
Rice paddies----------	73
Rivers----------	3
Total----------	1,622
Grand total----------	8,947

STRUCTURE OF THE INDUSTRY

Marine Fisheries:

There are 860,800 fishermen in Indonesia who operate 284,707 fishing boats ---mostly small canoes or sailing boats. The entire country has only 7,268 motorized boats.

In 1971 the main producing areas were Sumatra with 37 percent, Java with 22 percent, Kalimantan (formerly Borneo) with 21 percent, and Sulawesi (formerly the Celebes) with 14 percent.

By number of fishing craft, Sulawesi led in 1971 with 36 percent of the entire Indonesian fleet, followed by Sumatra with 16 percent of the fleet, Java with 15 percent, the Moluccas with 11 percent, and Kalimantan with 7 percent. The Moluccas produce only about 4 percent of the total Indonesian catch, but have 11 percent of the boats---indicating the small scale of operations. By number of fishermen, Sulawesi led with 30 percent, followed by Java with 27 percent, and Sumatra with 20 percent.

Productivity figures reinforce the regional difference. An analysis of the 1970 catch, for example, shows that the average catch per fisherman was low---an estimated 1.4 t per man. By region the average catch per fisherman was 2.6 t in Sumatra, 1.2 t in Java, 6.2 t in Kalimantan, and 0.6 t in Sulawesi.

Figure 1.-- A fishing boat and a fisherman on east Java return with their catch. In the background lies the island of Bali.

Inland Fisheries:

Inland fisheries produce an estimated 430,000 metric t per year. About 73 percent of this catch is landed in natural, open waters such as rivers and lakes, 12 percent in brackish waters, 10 percent in fish farms, and 5 percent in rice paddies.

While inland fisheries are found almost everywhere in Indonesia, the principal production areas are in Kalimantan, South Sumatra, and South Sulawesi in Lake Tempe. Principal varieties harvested include: carp, catfish, gourami, snake-head, and tilapia.

Figure 2.-- Carp being placed into baskets for transport to fish breeding ponds, at the Tjinindi fish culture facility on Java Island.

Fish cultivation is carried out in brackish waters, rice fields, and ponds; mainly on Java and South Sulawesi. The total area committed to fish culture in 1971 was 290,403 hectares, including 36,167 ha of fresh water ponds, 70,437 ha of paddy fields and 183,799 ha of brackish water ponds. The principal species cultured in Indonesia is milkfish. The annual production per hectare is 200 to 400 kilograms, which is considered very low.

Fish cultivation in rice paddies is currently being encouraged by the Government as a source of increased supplies for the rural areas. Emphasis is being placed on the culture of carp, gourami, and tilapia.

COMMERCIAL CATCH

According to the Directorate General of Fisheries, production of fish accounts for 4 percent of the Indonesian Gross National Product (GNP). Officers at the Directorate General are optimistic that this percentage will increase in the future, based on the large potential resource and the current low level of use.

Official statistics for the period 1968-72 indicate an increasing catch of marine species with a generally unchanged catch of inland species. Production for the period has increased at about 2 percent per year. Table 2 provides figures on the growth of the inland and marine fisheries.

Table 2.-- Indonesia's fisheries catch, 1968-72

Year	Catch by fishery		Total
	Marine	Inland	
	Metric t		
1972	838,475	429,300	1,267,775
1971	820,447	424,108	1,244,555
1970	807,391	421,121	1,228,512
1969	785,344	429,055	1,214,399
1968	722,511	436,528	1,159,039

Note: Figures for 1972 are preliminary. Data on the 1971 catch are revised estimates.

During the period 1966-71 the increased catch of marine species has been offset by decreased landings of inland species. Many factors have caused this decrease in inland production. Among these are:

1. Alluvial deposits have caused fish ponds to fill up or become shallow.

2. Insecticide runoffs have killed an increasing number of fish.

3. Logging industries have grown, resulting in water pollution and draining away fishermen to new fields of employment. This is especially true on Kalimantan where the logging industry has grown rapidly.

4. Insufficient development of fish farming techniques.

5. Limited supply of select fry from fish hatcheries.

The marine fisheries, although expanding, are also faced with many problems most of which are shared by the inland fisheries. These include:

1. Primitive gear used by the fishermen.
2. Fishing is confined to areas close to the shore.
3. Limited production, storage, processing, and transportation facilities.
4. Inability of poor fishermen to purchase modern fishing gear.

PRODUCTION AND MARKETING OF FISHERY PRODUCTS

Production:

The Directorate General of Fisheries has only recently begun to collect information about processed fish products, and it hopes to make these data available in the next few years. Table 3, however, shows data from an UNDP/FAO paper:

Table 3.-- Methods used for processing fish, 1971

Species	Method of production						Total
	Fresh	Salted	Smoked	Cooked	Canned	Frozen	
	Percent of total						
Shrimp ------	24	30	-	-	-	46	100 %
Mackerel ----	45	35	15	2	-	3	100 %
Sardine -----	4	72	4	13	7	-	100 %
Snappers ----	32	67	1	-	-	-	100 %
Reef fishes--	20	78	2	-	-	-	100 %
Jack mackerel-	6	18	7	69	-	13	100 %
Tuna----------	30	35	5	7	1	1	100 %
Other---------	9	77	5	7	1	1	100 %

Source: Magnusson, M.R. "Marketing of Fish in Indonesia," UNDP/FAO paper, 1972.

Marketing:

In Indonesia the fish catch is traditionally sold through auctions at numerous landing points or at collection stations. These are often far from the consumption centers, and the auction is only the first step in a complicated chain of marketing activities. The island of Java, for example, produced about 22 percent of the total catch in 1971, yet about 67 percent of Indonesia's entire population is located on that one island. The remainder of the catch is produced by fishermen living in the outer islands far from the main markets; more than 580,000 metric t of fish must therefore be transported from the producing areas to the principal markets in West and Central Java.

The marketing of fish in Indonesia is organized by region. In each region there is a highly systematized chain of subcollectors, collectors, wholesalers, retailers, and fish peddlers. The whole chain is controlled by a very small group of influential traders who arrange for licenses, and transportation of the fish to the market and who provide the sources of credit for the fishermen. In West and Central Java the marketing chain is controlled by traders in Djakarta and in Bandung. It is almost impossible to compete with the marketing chain, which has evolved over a period of about 50 years.

Figure 3.-- A fish market in Bandung on Java Island.

Marketing of salted-dried fish:

The marketing of fish and the consumption habits of the Indonesian people have been strongly influenced by the coast cargo vessels which have traditionally brought goods from Java to the outer islands. These vessels required cargo for their return trips to Java, and because salted-dried fish was plentiful and easy to ship, it fast became one of the most commonly transported products. Because salting was the only way to preserve the fish until it reached distant markets and because the fish can be stored in a salted or dried form for a long time, this fish product is available at all times in practically any market.

Over the years, therefore, the bulk of Indonesia's fish catch has been sold as heavily salted-dried fish. These fish are transported in straw and tree-leaf covers in bundles of various sizes and shapes. Some of these bundles weigh more than 100 kilograms when shipped from the outer islands to Java. When caught off the Java coast, the fish are processed and then packed in smaller straw baskets or are sold in bulk without any covering.

Figure 4.-- Fish being dried in the sun.

Marketing of fresh or frozen fish:

Fresh or frozen fish must be marketed by special trucks, which are not readily available in Indonesia. The cost per ton of transporting iced fish is many times greater than that of transporting salted-dried fish, which usually moves by uninsulated truck or rail.

Ice is most commonly used in Indonesia to preserve the quality of the catch as it is transported by truck from the coastal landing sites to the inland markets. It is also utilized to preserve the catch that is shipped from Kalimantan and Sumatra to the large coastal cities on Java, and on a small scale at the auction markets, but rarely aboard small fishing crafts or at the retail markets.

The limited use of ice is not only due to its lack of availability, but also to cost and other factors:

1. Most fishing boats are too small to hold ice boxes. Fishermen believe that ice is too costly (US$11 to $18 per ton) and that it is not necessary to use.

2. Many auction market personnel do not know how to use ice to preserve the fish.

3. Retail stores and peddlers do not use ice because they must display all the fish so customers can easily inspect them, and because the ice melts rapidly under the tropical sun.

Consequently there is a great deal of spoilage in the sale of fresh fish in Indonesia.

In a recent interview the Minister of Agriculture, Thoyib Hadiwidjaya, stated that Indonesia's fishing industry had been based on the pattern of marketing salted fish for centuries. He indicated that this should be changed and that the marketing of fresh fish should be given priority status in Indonesia's development program. Hadiwidjaya called for the establishment of a "cold chain" starting with the motorization of fishing boats, the construction of cold storage in fishing harbors, the use of refrigerated trucks, and the building of cold storage areas in the interior. The Indonesian Fisheries Cooperatives Center has been given the responsibility of coordinating the execution of the "cold chain" plan, and it has been granted approximately $482,000 in credits to begin the project.

According to a press announcement issued on November 9, 1973, by the Directorate General of Fisheries, there are 22 cold storage plants with a capacity of 345 metric t scattered throughout the country. Sumatra has 5 cold storage areas with a capacity of 55 metric t; Java 12 with 115 metric t; Kalimantan 3 with 150 metric t, and Sulawesi 2 plants with a capacity of 25 metric t.

The same press announcement reported that 20 fish cold-storage facilities with a total capacity of 5,132 metric t have been constructed under the domestic and foreign capital investment laws. Sumatra has 3 of these cold storage facilities with a capacity of 1,050 metric t; Java 11 with a capacity of 3,267 metric t; Kalimantan 1 of 275 metric t; Sulawesi with a 90 metric t capacity; the Moluccas 2 with a 200 metric t capacity, and Irian Jaya has 1 of 250 metric t.

Credit:

The large traders play an important role in the lending of money or credit to the Indonesian fishermen. These fishermen generally own a small sailing boat and sometimes have a small piece of land. This group has only its catch to offer against debts. This is the point where the trader has established himself. He offers a package deal to the fishermen, covers the most critical gaps in their needs, is most competent to ascertain their ability to pay, and is able to collect immediately after the fishermen receive payment for their catch---or is able to make arrangements to receive the whole catch. This places him at the heart of the credit business, and he is thus assured of securing a steady supply of fish. Trader credit is financed by wholesalers or large dealers. Collectors and dealers depend financially on these large traders and use the money they receive to give credit to the fishermen. Very high interest rates (up to 120 percent per year) and the very low landing market prices for fish make this arrangement very difficult for the fishermen.

Operators of large fish culture facilities and owners of large, powered vessels offer acceptable risks, and private and/or governmental credit institutions are generally willing to finance these groups.

CONSUMPTION OF FISHERY PRODUCTS

Indonesians are, in general, fond of fish and receive a large part of their total animal protein from this source. However, substantial regional differences exist in the consumption of fish. Some regions have relatively high per capita consumption of fish, while others have very low consumption. The table also shows how the annual consumption of fish varies in other parts of Indonesia.

Total fish landings in 1971 amounted to 1.2 million metric t., round weight. This suggests that the total per capita consumption of fish in Indonesia is 10.5 kilograms, round-weight per year. The average per capita income of the Indonesians is about Rupiah 41,500 (US$100.00) per year. The cost of fish in Indonesia is reportedly about $0.48/kg which means that on the average the Indonesian spends about $5.04 per year on fish; this is about 5 percent of his income for fish alone!

According to a survey by the Djakarta municipality, the larger a person's income, the greater his consumption of fish. The survey revealed that people with an income of Rupiah 60,000 ($144 per year consumed 12.62 kilograms of fish annually, whereas those in the Rupiah 60,000 to 120,000 ($144-289) salary range ate about 15.24 kilograms per year and those with higher incomes ate 25 kilograms. Naturally fish consumption is also influenced by other factors, such as taste, current prices, and habits.

FOREIGN TRADE

Exports:

During the period 1968-72 the quantity of fish being exported has increased 100 percent while the value has increased by 1,077 percent. Frozen shrimp is Indonesia's most valuable export accounting for some $28 million out of total fishery exports of $33 million.

The leading export markets for Indonesia's fish products are Japan, the United States, Hong Hong, Singapore, the Netherlands, Malaysia, and France. Other export destinations include Germany, Belgium, Italy, and Canada.

Exports to the United States in 1971 were $1,304,583 and included $871,597 worth of frozen shrimp, $100,397 of frozen frog legs, $15,927 worth of fresh-frozen fish, $3,676 worth of ornamental (aquarium) fish, and $312,986 worth of other kinds of fish or fish preparations.

Imports:

During the period 1968-72, Indonesian imports of fishery products increased from $507,000 to $1,458,000, an increase of about 287 percent. Canned fish and fresh-frozen fish were the two leading imports during the period. The latest statistics showing imports of fish products are for 1971, and they indicate that the leading suppliers of fish for Indonesia were Japan, Australasia, Singapore, and Malaysia. Imports from the United States totaled $9,097 in 1971. This included $7,259 worth of prepared (frozen, smoked, or salted) fish, $1,039 worth of canned fish, and $799 worth of crustacean or mollusk products.

Note: Statistical tables on Indonesia's fishery trade are available in FFL 72-15, "Fisheries of Indonesia, 1971."

Table 4.-- Fish production and consumption, 1971, wet fish equivalent

Consumer area	Population	Fish production	Shipped from processing areas to consumer areas								Fish consumption	Annual fish consumption/ person
			West Java	Central Java	East Java	Sumatra	Kalimantan	Sulawesi	Nusa Tenggara	West Irian		
	Million	Thousand t										Kg
West Java	26	140			20	201	74	4		3	442D [a]	17
Central Java	24	50					180	32		26	288D	12
East Java	27	77					13				70S	2.6
Sumatra	20	439									238S	11.9
Kalimantan	4	305									38S	9.5
Sulawesi	10	165									100S	10
Maluku and West Irian	2	49									20S	10
Nusa Tenggara	7	41						29			70D	10
TOTAL	120	1,266			20	201	267	65		29	1,266	

Average consumption per person 10.55 kg.
[a]D = Deficit area S = Surplus area
Magnusson, M.R., Data from "Marketing of Fish in Indonesia". UNDP/FAO Jakarta Paper 1972.

DOMESTIC AND FOREIGN INVESTMENT IN FISHERIES

Domestic:

According to the Directorate General of Fisheries, 8 Indonesian firms have invested a total of $3,918,580 to date in Indonesia's fisheries, under the Domestic Capital Investment Law of 1968. Although these 8 firms are listed as being domestically owned and operated, an article in the July 1973 issue of Warta Ekonomi Maritim Review revealed that much of the the capital for these firms has actually been supplied by Japanese firms and that some of these companies have even invited Japanese experts to manage their operations.

1. P.T. Surya Sakti. Established in 1969, the firm is located at Jalan Benjai, Medan. The firm has invested a total of $660,241 to date. The company engages in fishing, mainly for shrimp, off the east coast of northern Sumatra in the Strait of Malacca. The company catches, processes, trades locally, and exports fish and shrimp. It owns a cold storage facility in Belawan.

2. P.T. Pumar. Established in 1969, the firm is located at Jalan Lautze, 34-87, Djakarta. Total investment to date is $715,662. The firm catches, processes, trades, and exports shrimp. It operates in Cirebon, Tegal, Semarang, Surabaya, Djakarta, Cilacap, Lampung, Jambi, and Pelembang.

3. P.T. Nichimayan. Established in 1971. Total investment of $417,465. Catches, processes, and exports tuna and smoked fish. Operates in the Sunda Strait and West Sumatra.

4. P.T. Semarang Coldstorage. Established in 1969. Located on Jalan Empu Tentular 94, Semarang. Total investment of $436,447. Catches, processes, trades, and exports shrimp. Firm operates in Kalimantan, Irian Jaya, Central Java, and Tanimbar Island.

5. P.T. Hasikin Jaya. Established in 1971. Located at Jalan Tanah Abang. Investment of $380,916. Catches, processes, and exports shrimp. Operates in the waters of the Molucca Islands and in Irian Jaya.

6. P.T. Maprodin. Established in 1971. Located at Jalan Tiang Bendera 28, Djakarta. Total investment is $915,738. Company catches, trades, and exports shrimp. Operates around Molucca Islands and in Irian Jaya.

7. P.T. Bonecom. Established in 1968. Located at Jalan Sulawesi, Unjung Pandang, Sulawesi. Total investment of $317,111. Company engages in shrimp culture and it catches, processes, trades, and exports fish and shrimp. The company operates in South Sulawesi, the Molucca Islands, and in Irian Jaya.

8. P.T. Dharma Mulya. Established in 1972. Located at Jalan Kali Besar Barat 2, Djakarta. Total investment is $75,000.

Company collects and exports shrimp and other sea products. It operates in West Kalimantan, South Sumatra, West Java, and in Djakarta.

Foreign:

The Japanese are the most important foreign investors in the fisheries of Indonesia. The following list of 11 Japanese fishery firms operating in Indonesia provides general backgrounds on each firm:

1. P.T. Misaya Mitra. Established in December 1968 with a total investment of $1.7 million. The firm is a joint venture between Toho Suisan (90%) and P.T. Pelindo-Raja (10%), which fishes for shrimp in the waters off South Sumatra. The company began with 3 shrimp trawlers and planned to expand their fleet to between 20 and 30 vessels. They reportedly have employed 47 Japanese and 120 Indonesian nationals.

2. P.T. Toyo Fishing Industry Company (TOFICO): Established in September 1969. TOFICO is a direct investment project (100% ownership) of the Toyo Menka Company. The Company has invested $2.2 million into this operation. The firm reportedly operates with 2 motherships and 11 shrimp trawlers off the coast of Central, South Central, and West Kalimantan. Reportedly the firm employs 143 Japanese and 156 Indonesians.

3. P.T. West Irian Fishery Industries. Established in May 1970 with a investment of $2.3 million. Nihon Suisan (50%), Mitsubishi (20%), Nampo Kaihatsu (20%) together with P.T. Perikanan Modern (10%) form the joint venture. The Company fishes for shrimp with 3 chartered vessels and 6 company-owned vessels in the waters off West Irian. It is believed that 4 additional vessels have been added to this fleet. The firm reportedly employs 140 Japanese and 69 Indonesians.

4. P.T. Irian Marine Product Development. Established in June 1970 with a total investment of $1.4 million. This shrimp fishing joint venture is owned by Nihon Suisan (30%), Hokoku Suisan (30%), Nissho Iwai (20%), and P.T. Kasuari (20%). The venture fishes with 7 trawlers in waters off Irian Jaya and reportedly employs 138 Japanese and 28 Indonesians.

5. P.T. Nusantara Fishery. Established in December 1970 for $1.2 million. The company is a joint venture between Taiyo Gyogyo (40%), Mitsui and Co. (40%), and P.T. Emdece Marine Development Corporation (20%). They reportedly operate 6 shrimp trawlers off Irian Jaya.

6. P.T. Nina Kartika. Established in 1971 with $2.1 million. This is a joint shrimp venture between Kyokuyo (80%) and the Central Indonesian Army Cooperative (20%). The company operates 8 shrimp trawlers off Irian Jaya and around the Molucca Islands.

7. P.T. Central Java Marine Products Company. Established in May 1971. Total investment to date has been $425,762 out of a committment of $1.1 million. Sumitomo Shoji (90%)

and N.V. Hadji Mohamed Sulhan of Semarang are the two partners. The company is engaged in the collection and export of fish to Sumitomo in Japan. The venture reportedly operates a 150-ton cold storage facility.

8. P.T. Indonesian Fisheries Company. Established in September 1971. The firm is involved in Skipjack fishing with 4 vessels off the Celebes. Hoko Suisan, Toyo Menka, and the Indonesian Central Fisheries Corporation (INCECOP) are the partners.

9. P.T. East Indonesian Fisheries Company. Established in March 1972 with a commitment of $1.3 million. This skipjack fishing venture involves Nichiro (60%), Mitsubishi (20%), and the Indonesian Fisheries Corporation (20%). The company operates one 700-GRT reefer, one 400-GRT carrier and five 100-GRT skipjack vessels. The firm also has a 500-ton capacity cold storage plant with a 5-ton/day ice-making capacity. The firm fishes out of Ternate on Halmahera Island.

10. P.T. Asia Marine Products Ltd. Established in March 1972 with an intial investment of $250,000. Nihon Hogei, Kanematsu-Gosho Ltd. and the Bone Commercial Company are the partners. The Japanese own 44.2% of the operation which involves shrimp fishing out of Macassar with four 100-GRT trawlers. The firm also plans to build a 220,000 sq. meter pond in which they hope to raise 200 tons of shrimp.

11. P.T. Maluku Pearl Development. This firm has also been identified as the Arafura Pearl Company and as the Fuji Enterprise Company. It reportedly is a joint venture between the P.T. Cora Cora (50%) and the Arafura Pearl Company Ltd. (50%). The company is engaged in the culture of pearls around the Tanimbar, Kai, and Aru Islands.

In late 1972 it was reported that the Marubeni Corporation and the Mantrust Company of Indonesia would build an industrial complex to process fish in Indonesia. No further developments have been reported on this proposed complex.

In addition to the Japanese investments in the Indonesian fisheries there are 2 United States firms involved with the Indonesians. They are:

1. North Star Food Products Co., Inc. This firm maintains a representative office in Djakarta for the export of Indonesian seafoods to its parent firm in New York.

2. P.T. Trifood Indonesia. This is a joint venture operation between Triland Equiries Ltd. and its Indonesian partner P.T. Upernas.

Foreign Investment Procedures:

Foreign investment in Indonesian fisheries is controlled by the Foreign Investment Law of 1967 and by regulations established by the Directorate General of Fisheries. U.S. firms interested in investing in Indonesian fisheries should first contact the following agencies:

1. A. R. Shoehoed
   Coordinator for Investment Promotion
   Captial Investment Coordinating Board
   Jalan Taman Cut Mutiah, 7
   Djakarta, Indonesia

2. Nizam Azchman
   Director General
   Directorate General of Fisheries
   Department of Agriculture
   Jalan Salemba Raya 16
   Djakarta, Indonesia

Initial personal contact with above-listed officials is recommended, for they are in a position to provide in-depth information on the feasibility of investment in the Indonesian fisheries.

If an applicant's project is considered feasible, he will be requested to submit a foreign capital investment form---called "Form A"--- to the Capital Investment Coordinating Board. A copy of the form should also be sent to the Director General of the Fisheries, together with a basic joint enterprise agreement and background information on his company. The Board will review the applicant's form with the Directorate General of Fisheries and notify the applicant immediately of the decision of the Board.

The applicant may then apply for permission to make an exploratory fishing survey (if the Directorate General of Fisheries deems it necessary to do so). This request should be sent to the Director General, but surveys are actually made after consultation with the Fisheries Research Institute of the Directorate General of Fisheries. Therefore, an approved survey is undertaken jointly between the Directorate General of Fisheries and the applicant in accordance with the survey agreement concluded between the parties concerned.

If the first form is approved, then the applicant will be requested to submit a more detailed project proposal called the foreign investment application form (or "Form B").

Pending a decision on his second application, the prospective investor should contact a notary in Indonesia for the purpose of drawing up a notarial act for the establishment of a corporate body (limited liability company).

Following the review of the second application by the Capital Investment Coordinating Board, which will have a representative of the Directorate General of Fisheries participating in its deliberations, the Chairman of the Board will forward his consideration in a written recommendation to President Soeharto for his approval. If the President approves the proposed investment, then the Government Department involved (Department of Agriculture, Directorate General of Fisheries), coordinated by the Capital Investment Coordinating Board, will issue the appropriate decisions and permits to enable the application company to operate. (The decisions and permits will

actually be forwarded to the applicant by the Capital Investment Coordinating Board's Coordinator for Administration and Control).

Other useful data for the prospective invester are contained in the following excerpt (verbatim) of an article in the July 1973 issue of the magazine,

Warta Ekonomi Maritim Review:

"..With regard to foreign investment, the Directorate General of Fisheries issued a directive that ventures in this field should all be joint ventures and not straight investments, because foreign investment in fishing does not mean that we want our seas to be outfished by foreigners, but that on the other hand, we should make use of their skills and technical know-how to have our own technical know-how developed within the shortest possible time.

"Strict requirements are applied to foreign capital, like:

_____ All new enterprises should be integrated enterprises, namely that they are obliged to build cold storage on shore and to have an investment plan for a least 3 years. Before the cold storage is finished a sum of money must be deposited with the bank as a guarantee and if the storage is finished within the prescribed time the money will be returned. But if within 3 years this storage has not yet been built the money shall be paid to the Ministry of Finance.

_____ The cold storage must accept the products of the local fisher, provided that it is intended to be exported.

_____ The cold storage should only be intended to meet the export market in order not to ruin the domestic market which is to be met by the local fishermen.

_____ Control on administration, operation and exports shall be exercised.

_____ The ships transporting the fish should fly the Indonesian flag.

_____ The working period of the foreign capital will be between 10 and 20 years. At the end of that period the shares must all be sold to the partner.

_____ The candidate investor must conduct a survey in collaboration with the Seafisheries Research Institute (LPPL). The survey expenses shall be borne by the foreign investor and recently there was also the regulation that after the survey is made, cancellation of the investment shall be allowed. This is the result of the fact that many ships have run away after making surveys while also catching fish.

_____ The survey data shall become the property of the State and not of said enterprise."

FOREIGN TECHNICAL ASSISTANCE AND AID

Technical Assistance

Seven foreign technical assistance projects with a total value of $4.8 million were undertaken in Indonesia since the beginning of the country's First Five Year Economic Development Plan in 1969.

UNDP/FAO Assistance

A UNDP/FAO group works with Directorate General of Fisheries. This group works on three large-scale projects: (1) Fisheries Development and Management; (2) Marine Fisheries Training; and (3) Brackish Water Fish Training Project at Jepara.

(1) Fisheries Development and Management

This new project is designed to provide means, expertise, and equipment to assist the Government in its endeavors to modernize and expand the fishery industries of Indonesia. This project began in April 1973 and is not yet fully operational. The UNDP contribution to this project is $1,227,900, nine experts, and 24 man-months of consulting services. This project will be completed in December 1976.

(2) Marine Fisheries Training Project

The long-range objectives of this project are to provide qualified personnel required for fishing vessel operations, fish catching, processing, and management in the fishery industry in order to contribute to Indonesia's objectives for substantial increases in marine fishery production.

Some of the more important immediate objectives of this project are:

a. To strengthen the education of students at the Academy of Fisheries with an assured practical orientation.

b. To strengthen further the training given at the Senior Fisheries High School and Fishermen's Training Center at Tegal, aiming at attaining 500 to 600 graduates yearly.

c. To assist in establishing a training center in Tegal for training in the field of processing (with emphasis on refrigeration), with 50 graduates per year.

d. To assist in establishing a Fishermen's Training Center at Sorong, with 120 graduates per year.

e. To provide training at Tegal for key personnel of the Directorate of Fisheries, which will establish and run the Fishermen's Training

Centers at Menado, Medan, Singaraja, Ambon, and Sorong, and supply basic training equipment for these centers.

This project is investment-support oriented and is intended to create a favorable climate for investment by assuring the availability of qualified personnel for fishery enterprises. The UNDP contribution will be $1,454,200, 14 experts, and 12 months of consultation. This project began April 1, 1973, and will be completed in December 1976.

(3) Brackish Water Fish Training Project at Jepara
The long-range objectives of this project are to contribute to a substantial improvement and increase in the productivity of the inland fishery industry by the rehabilitation of existing facilities, creation of new facilities, development and expanding utilization of new and improved techniques, and creation of an extension capability in the culture and production of brackish water shrimps and milkfish. The UNDP contribution to this project is $699,400 and six experts. This project began April 1, 1972, and will be completed in October 1974.

Foreign Aid

The International Development Association financed the Aer Tembaga project; the Sabang and Benoa project was financed by the Japan's Overseas Economic Cooperation Fund; and the Asian Development Bank the Riau project.

VESSEL AND GEAR

The Indonesian report, Fisheries Statistics of Indonesia, indicates that there were 284,707 fishing boats in Indonesia in 1972. This included 277,439 nonpowered boats, most of which were sailboats, and 7,268 powered boats. The number of power boats in Indonesia increased 27 percent from 1968 to 1972.

Table 5 shows the types and locations of fishing boats in Indonesia in 1971:

Table 5.-- Number of fishing boats by type and island, 1971[1/]

Island	Boats		
	Nonpowered	Powered	Total
	--------Number------		
Java	42,481	768	43,249
Sumatra	37,903	4915	42,818
Kalimantan	18,021	1023	19,044
Sulawesi	103,954	188	104,142
Bali-Nusatenggara	26,459	35	26,494
Moluccas-Irian Jaya	48,844	247	49,091

1/ Source: Directorate General of Fisheries, Revised statistics. (The totals in this table differ slightly from those contained in the latest tabulation of Fisheries Statistics of Indonesia).

The most widely used fishing gears in Indonesia are bottom trawls, gillnets, seines, pole-and-line, troll lines, longlines, and stationary gear such as trap nets.

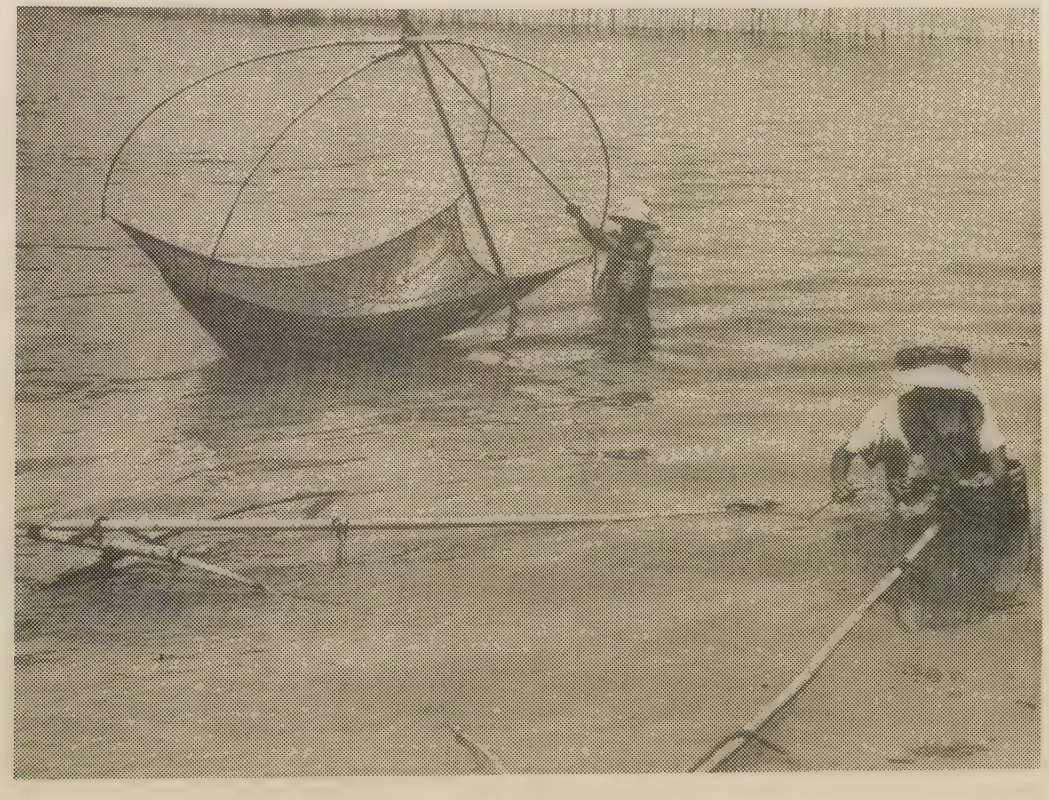

Figure 5.-- Fishing gear used by fishermen in Djakarta's harbor

Table 6 shows the number, sizes and types of fishing gear and vessels used in the different provinces of Indonesia.

Table 6.-- Indonesian fishing gear and vessels, by number, type, and province, 1971

REGION I	Trawls & seines	Gill nets	Lines	Other gear	Small boats	Small boats motorized	Medium size boats	Medium boats motorized	Large boats	Large boats motorized
Aceh	300	3,000	8,000	2,000	5,800	220	5,300	30	100	10
North Sumatra	1,500	2,600	10,000	8,000	6,900	750	4,500	120	200	50
Riau	2,000	3,437	5,000	8,000	6,000	4,200	3,000	240	500	77
Jambi	655	623	2,000	1,200	2,000	150	1,200	70	140	24
South Sumatra	2,000	7,700	21,000	19,000	8,500	300	4,000	60	200	20
Lampung	448	1,257	3,596	4,827	1,900	105	1,200	23	48	15
Total:	6,903	18,617	49,596	43,027	31,100	5,725	19,200	543	1,188	196
REGION 2										
West Kalimantan	268	1,950	3,500	30,000	31,000	450	2,000	5	340	4
Central Kalimantan	1,300	3,370	10,000	18,400	25,400	74	4,000	3	402	1
East Kalimantan	1,326	1,800	8,000	13,500	18,000	262	2,286	72	299	22
South Kalimantan	4,483	3,800	18,000	20,000	36,000	300	2,050	10	400	5
Total	7,377	10,920	39,500	81,900	110,400	1,086	10,336	90	1,441	32

Table 6.-- Cont'd

REGION 3	Trawls & Seines	Gill nets	Lines	Other gear	Small boats	Small boats motor-ized	Medium size boats	Medium size motor-ized	Large boats	Large boats motor-ized
South Sulawesi	400	13,750	47,954	26,000	36,000	100	8,600	-	200	-
South-East Sulawesi	452	300	17,000	2,558	13,891	34	3,522	4	100	-
West Java	1,900	23,180	7,980	16,036	4,500	370	4,000	150	1,200	80
Central Java	1,030	12,200	4,200	8,440	6,279	125	2,500	20	1,050	5
East Java	1,000	15,000	13,000	25,000	16,000	13	5,000	-	100	-
Bali	50	750	1,500	1,300	9,000	14	2,500	-	20	-
Totals:	4,832	65,180	91,634	79,334	85,670	656	26,122	174	2,670	85
REGION 4										
North Sulawesi	4,226	-	29,435	8,725	24,000	40	3,510	-	550	-
Central " "	-	-	-	-	11,933	4	1,500	-	300	-
Bengkulu	-	-	-	-	600	5	300	-	170	-
West Sumatra	-	-	-	-	2,700	150	1,500	25	200	10
East Nusa Tenggara	-	-	-	-	8,100	-	1,700	-	100	-
West Nusa Tenggara	-	-	-	-	4,000	11	1,300	-	200	-
Maluku	-	-	-	-	28,000	19	4,000	-	600	-
West Irian	-	-	-	-	15,900	210	50	18	-	-
TotalS:	6,000	±8,000	±40,000	±30,000	99,033	439	13,860	43	2,120	10

EMPLOYMENT

According to the latest available information the total number of fishermen in Indonesia is 860,800. This figure includes 590,100 full-time fishermen and 270,700 part-time fishermen. In 1971, however, it was reported that there were 893,761 persons classified as "marine fishermen" with 300,000 to 400,000 additional persons believed to be in the inland fisheries. An article in the July 1973 issue of the Warta Ekonomi Maritim Review indicated that fishermen and their family members total 5 million people in Indonesia.

A census of fishermen on Java, Sumatra, and Bali is scheduled to be taken by the Central Bureau of Statistics beginning in January 1974. The processing and publication of the census data are expected to take 1 year.

Figure 6.-- A typical Indonesian inland fisherman with his family. Hundreds of thousands of Indonesians are involved in similar fish culture projects which help the Indonesian's feed their families.

FISHERIES AND THE 5-YEAR PLAN

Indonesia's first Five Year Economic Development Plan 1969-74 for the fishing industry had as its basic aim the achievement of a more rapid annual production (catch) increase. The following measures were cited as necessary in the Five Year Plan:

1. To improve marine fishing equipment and methods.
2. To increase domestic fish consumption and exports by catching more tuna fish and shrimps.
3. To expand the scale of shrimp fishing by using modern equipment.
4. To improve and extend fishing industry infrastructure and marketing.
5. To improve credit institutions serving the fishing industry and expand the supply of credit.
6. To increase inland fishery production.
7. To rehabilitate and improve existing fishing schools.
8. To improve fish marketing facilities (storage and transportation).

Listed below is a table showing the fish production targets for the first Five Year Economic Development Plan and the actual production achievements during the first 4 years of the Plan:

Table .--- Fish Production targets and achievements, 1969/70 - 1972/73

Period	Target		Achievements	
	Marine fisheries	Inland fisheries	Marine fisheries	Inland fisheries
	Thousand tons			
1969/70	898	525	723	437
1970/71	1,003	551	785	429
1971/72	1,085	579	807	421
1972/73	1,200	608	820	424
1973/74	1,331	638	-	-

It can be readily observed from the above table that annual production (catch) of both marine and inland fish has fallen short of the target. Nevertheless, considerable progress is being made in expanding production and, as indicated earlier, exports of fish have risen substantially in a very short time.

In a paper "Fisheries Development and Management in Indonesia" delivered at the 1973 Technical Conference on Fishing Management and Development in Vancouver, Canada, the Director General of Fisheries Cited the following, as Indonesia's achievements in fisheries during the first Five Year Plan:

"a. the establishment of large scale fishing industries capable of exporting high value products such as shrimp, tuna and other species to an amount of $30-40 million annually;

b. the establishment of marketing facilities for fresh fish distribution in the most populated areas of Indonesia such as Java and Sumatra;

c. the preparation of the artisanal (small-scale) fishermen physically and mentally, up to a certain level of readiness for takeoff toward self-sustained growth;

d. the establishment of effective research systems capable of providing basic and applied data leading to better resources management;

e. the establishment of effective education and training systems capable of meeting rising demands for technically and managerially skilled personnel;

f. the establishment of fisheries cooperatives as an institutional means in promoting the development of entrepreneurship among the artisanal fisheries; and

g. the improvement of the Government's fishery services, both in Jakarta and the regions."

In another paper presented at the Working Session in Cisarua, West Java, of the Directorate General of Fisheries in July 1973, the Director General of Fisheries indicated that the overall strategy and targets established for the first Five Year Plan would still be pursued in the Second Plan. The Director General also listed the following as programs that would receive special emphasis in the Second Five Year Economic Development Plan beginning in the spring of 1974;

"a. promotion and improvement of peasant fishery operations;
b. a drive to expand exports;
c. a campaign to improve fishery statistics;
d. improvement in the grade, packaging, labelling and packing of fish products and to improve their marketing; and
e. improvement of the Government fisheries organization both in Jakarta and the regions."

ORGANIZATION OF THE DIRECTORATE GENERAL OF FISHERIES

Listed below are the names, titles, and addresses of the key officials in the Directorate General of Fisheries:

1. Nizam Zachman
   Director General
   Directorate General of Fisheries
   Jalan Salemba Raya 16
   Jakarta

2. A. Tjipto Wignjoprajitno
   Secretary
   Directorate General of Fisheries
   Jalan Salemba Raya 16
   Jakarta

3. Hadi Atmowasono
   Director of Planning
   Directorate General of Fisheries
   Jalan Salemba Raya 16
   Jakarta

4. Drs. Sidarto
   Director of Entrepreneurial Development
   Directorate General of Fisheries
   Jalan Salemba Raya 16
   Jakarta

5. R. Slamet Prajitno
   Director for Production and Marketing Development
   Directorate General of Fisheries
   Jalan Salemba Raya 16
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6. Latif Hasjim
   Director of Information Elucidation (Extension Service)
   Directorate General of Fisheries
   Jalan Salemba Raya 16
   Jakarta

7. V. Soesanto
   Director for Potential Resources and Wildlife Protection
   Directorate General of Fisheries
   Jalan Salemba Raya 16
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8. Rustami Djajadiredja
   Director of Inland Fisheries Research Institute
   Directorate General of Fisheries
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   Bogor

9. Sofjan Iljas
   Director Fishing Technology Institute
   Directorate General of Fisheries
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10. Moh. Unar
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    Directorate General of Fisheries
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    Jakarta

SOURCES OF INFORMATION USED IN THIS REPORT

1. Interviews with several officers of the Directorate General of Fisheries and UNDP/FAO Team.

2. Facts and Figures, a 49-page booklet of statistics published by the Directorate General of Fisheries, October 1972.

3. Fisheries Statistics of Indonesia, a 20-page draft booklet soon to be published by the Directorate General of Statistics.

4. Paper on Fisheries of Indonesia by Gert Van Santen, UNDP/FAO Support Team to Agricultural Planning in Indonesia, 1973.

5. Preliminary draft of paper on Fisheries, Annex 10 to World Bank Mission Jakarta Agricultural Sector Survey, May 1972.

6. Warta Ekonomi Maritim Review, July 1973 Special Report on Fisheries of Indonesia.

7. Paper on "The Seafood Industry in Indonesia" issued by the Chase Manhattan Bank N.A., Jakarta, November 1971.

8. Various clippings from Indonesian newspapers and news bulletins.

9. Copies of speeches given by Nizam Zachman, Director General of Fisheries.